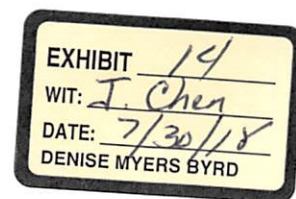# APPENDIX 2

League of Women Voters Plaintiffs

SUPPLEMENTAL DECLARATION OF JOWEI CHEN
DATED JULY 11, 2018

I, Jowei Chen, under penalty of perjury, declare the following:

1. I was asked by plaintiffs' counsel to use the following process to select one of the 3,000 North Carolina congressional maps I previously generated in this litigation as a demonstration plan for purposes of establishing standing: (1) Start with the 1,000 maps in Simulation Set 2, all of which protect more incumbents than the 2016 Plan and split fewer counties. (2) Of these maps, identify the ones that contain a district with a Black Voting Age Population above 40%. (3) Of these maps, identify the ones that contain seven Republican districts and six Democratic districts using Dr. Thomas Hofeller's seven-election average (and thus an efficiency gap near zero). (4) Of these maps, identify the one that has the most compact districts, on average, considering both Reock and Polsby-Popper compactness. In calculating the Black Voting Age Population of each district, I include only individuals who identify as single-race African-American.

2. This process led to the selection of Plan 297 in Simulation Set 2 (hereinafter: Plan 2-297). Maps of Plan 2-297 and the 2016 Plan are below, in which each district in each plan is shaded based on Dr. Hofeller's seven-election average. Individual maps of each of Plan 2-297's and the 2016 Plan's districts (also shaded using Dr. Hofeller's seven-election average) are included at the end of this declaration.

Plan 297 of Simulation Set 2
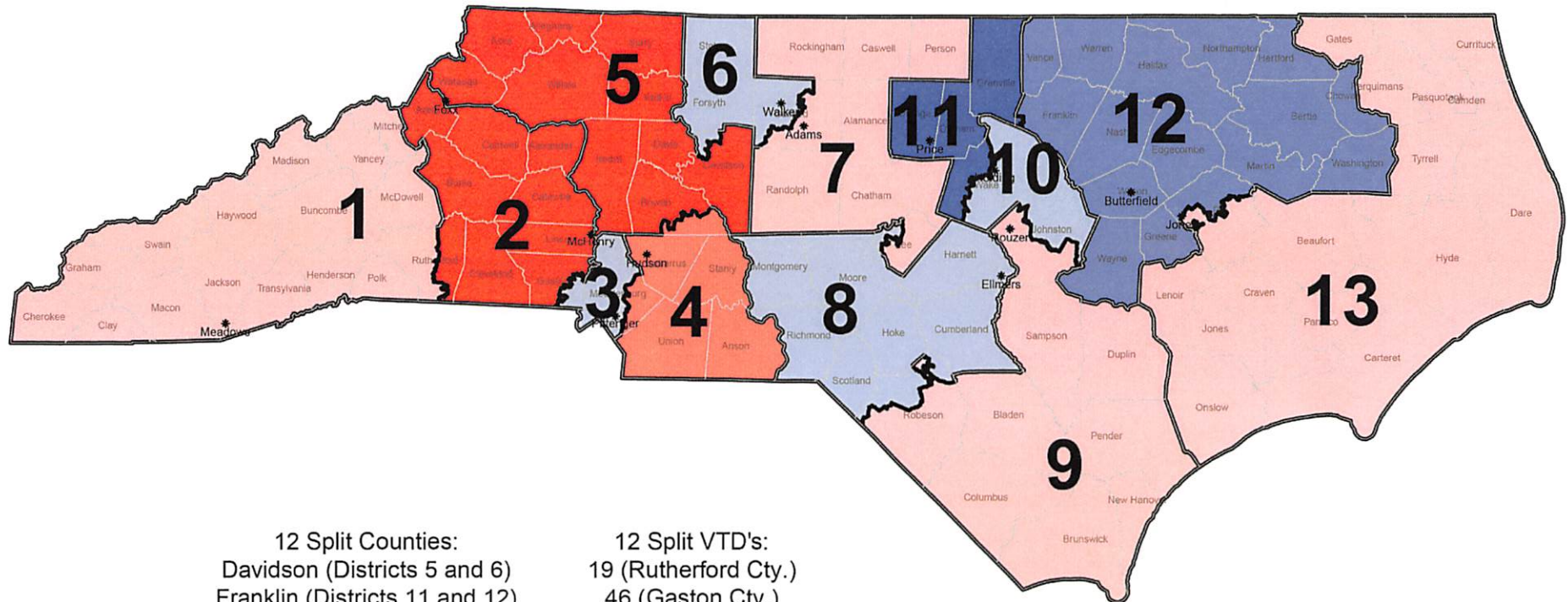
12 Split Counties:
Davidson (Districts 5 and 6)
Franklin (Districts 11 and 12)
Gaston (Districts 2 and 3)
Guilford (Districts 6 and 7)
Johnston (Districts 10 and 9)
Lee (Districts 7 and 8)
Mecklenburg (Districts 3 and 4)
Pitt (Districts 12 and 13)
Robeson (Districts 8 and 9)
Rowan (Districts 4 and 5)
Rutherford (Districts 1 and 2)
Wake (Districts 10 and 11)

12 Split VTD's:
19 (Rutherford Cty.)
46 (Gaston Cty.)
045 (Mecklenburg Cty.)
46 (Rowan Cty.)
50 (Davidson Cty.)
G44 (Guilford Cty.)
D (Lee Cty.)
10 (Robeson Cty.)
PR28 (Johnston Cty.)
06−01 (Wake Cty.)
19 (Franklin Cty.)
0101 (Pitt Cty.)

2

Enacted 2016 Plan (SB 2)
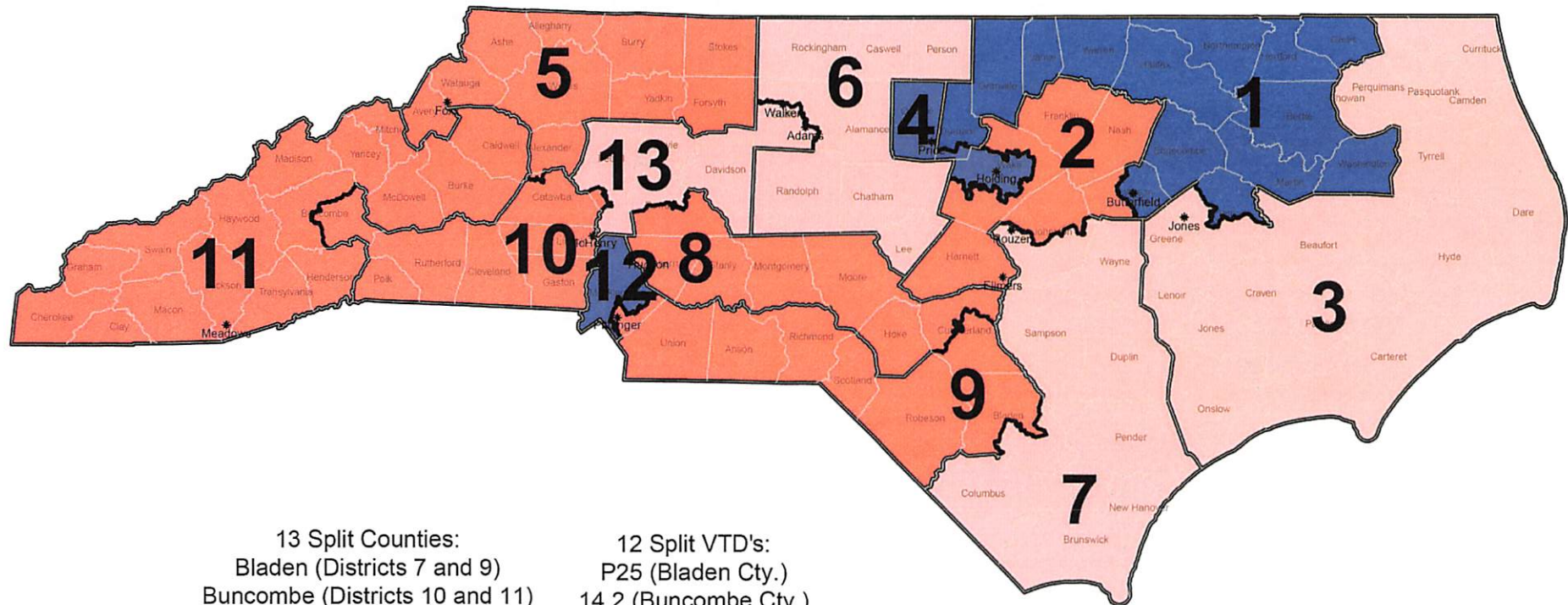
13 Split Counties:
Bladen (Districts 7 and 9)
Buncombe (Districts 10 and 11)
Catawba (Districts 5 and 10)
Cumberland (Districts 8 and 9)
Durham (Districts 1 and 4)
Guilford (Districts 6 and 13)
Iredell (Districts 10 and 13)
Johnston (Districts 2 and 7)
Mecklenburg (Districts 9 and 12)
Pitt (Districts 1 and 3)
Rowan (Districts 8 and 13)
Wake (Districts 2 and 4)
Wilson (Districts 1 and 2)

12 Split VTD's:
P25 (Bladen Cty.)
14.2 (Buncombe Cty.)
29 (Catawba Cty.)
CC08 (Cumberland Cty.)
G71 (Guilford Cty.)
FT (Iredell Cty.)
PR26 (Johnston Cty.)
002 (Mecklenburg Cty.)
1509 (Pitt Cty.)
28 (Rowan Cty.)
16−05 (Wake Cty.)
PRTA (Wilson Cty.)

3

3. Like all of the maps in Simulation Set 2, Plan 2-297 protects 13 incumbents (compared to 11 in the 2016 Plan), splits 12 counties (compared to 13 in the 2016 Plan), splits 12 VTDs (the same as the 2016 Plan), and contains districts that are equal in population to within one person. Plan 2-297 further has an average Reock compactness score of 0.464 (compared to 0.337 in the 2016 Plan) and an average Polsby-Popper compactness score of 0.301 (compared to 0.242 in the 2016 Plan).

4. The below table provides additional information about each district in Plan 2-297: (1) its population; (2) its Black Voting Age Population share; (3) its partisan score using Dr. Hofeller's seven-election average; (4) its Reock compactness score; and (5) its Polsby-Popper compactness score.

Table 1: Characteristics of Districts in Plan 297 from Simulation Set 2 (Plan 2-297)

District	Total Population	Black Voting Age Population	District's Republican Vote Share (Hofeller Formula)	Reock Score	Polsby-Popper Score
1	733,498	3.88%	52.62%	0.320	0.324
2	733,499	10.16%	63.62%	0.553	0.325
3	733,499	27.79%	45.82%	0.516	0.237
4	733,499	19.06%	57.77%	0.574	0.448
5	733,498	8.53%	63.86%	0.359	0.276
6	733,499	22.60%	49.30%	0.522	0.320
7	733,499	22.99%	51.49%	0.481	0.248
8	733,499	28.24%	46.43%	0.396	0.245
9	733,498	18.75%	52.18%	0.551	0.300
10	733,499	22.75%	47.40%	0.393	0.249
11	733,498	22.60%	36.78%	0.418	0.269
12	733,499	41.42%	40.84%	0.465	0.327
13	733,499	20.79%	54.43%	0.490	0.343

4

5. Plaintiffs' counsel also provided me with a list of North Carolina precincts, in each of which either an individual plaintiff or a member of the League of Women Voters of North Carolina lives. The below table specifies the following information about each of these precincts: (1) in which district in the 2016 Plan the precinct is located; (2) what this district's partisan score is using Dr. Hofeller's seven-election average; (3) in which district in Plan 2-297 the precinct is located and (4) what this district's partisan score is using Dr. Hofeller's seven-election average.

.

Table 2:
Precincts in which League of Women Voters of North Carolina Plaintiffs and Members Reside:

County:	Precinct Name:	Precinct's District in Enacted Plan (SB 2):	Republican Vote Share of Precinct's District in Enacted Plan (Hofeller Formula) :	Precinct's District in Plan 297 of Simulation Set 2:	Republican Vote Share of Precinct's District in Plan 297 of Simulation Set 2 (Hofeller Formula):
Washington	PLYMOUTH 1	1	31.17%	12	40.84%
Martin	JAMESVILLE	1	31.17%	12	40.84%
Wake	20-11	2	56.20%	11	36.78%
Wake	01-04	4	37.68%	10	47.40%
Forsyth	074	5	56.15%	6	49.30%
Guilford	NCGR2	6	54.46%	6	49.30%
Wayne	13	7	53.42%	12	40.84%
Moore	EUREKA / WHISPERING PINES	8	55.13%	8	46.43%
Mecklenburg	86	9	56.04%	3	45.82%
Catawba	WEST NEWTON	10	58.17%	2	63.62%
Burke	DREXEL 01	11	57.11%	2	63.62%
Mecklenburg	20	12	36.63%	3	45.82%
Guilford	G31	13	53.71%	6	49.30%

6

6. While I have carried out this analysis with respect to Plan 2-297, the results would be very similar under any of the maps I generated with seven Republican districts and six Democratic districts using Dr. Hofeller's seven-election average. Under any of these maps, many Democratic voters, in many parts of North Carolina, would be placed in districts with significantly different partisan compositions than their districts under the 2016 Plan.

I declare under penalty of perjury under the laws of the United States that the foregoing is true and correct to the best of my knowledge.

This 11th day of July, 2018.
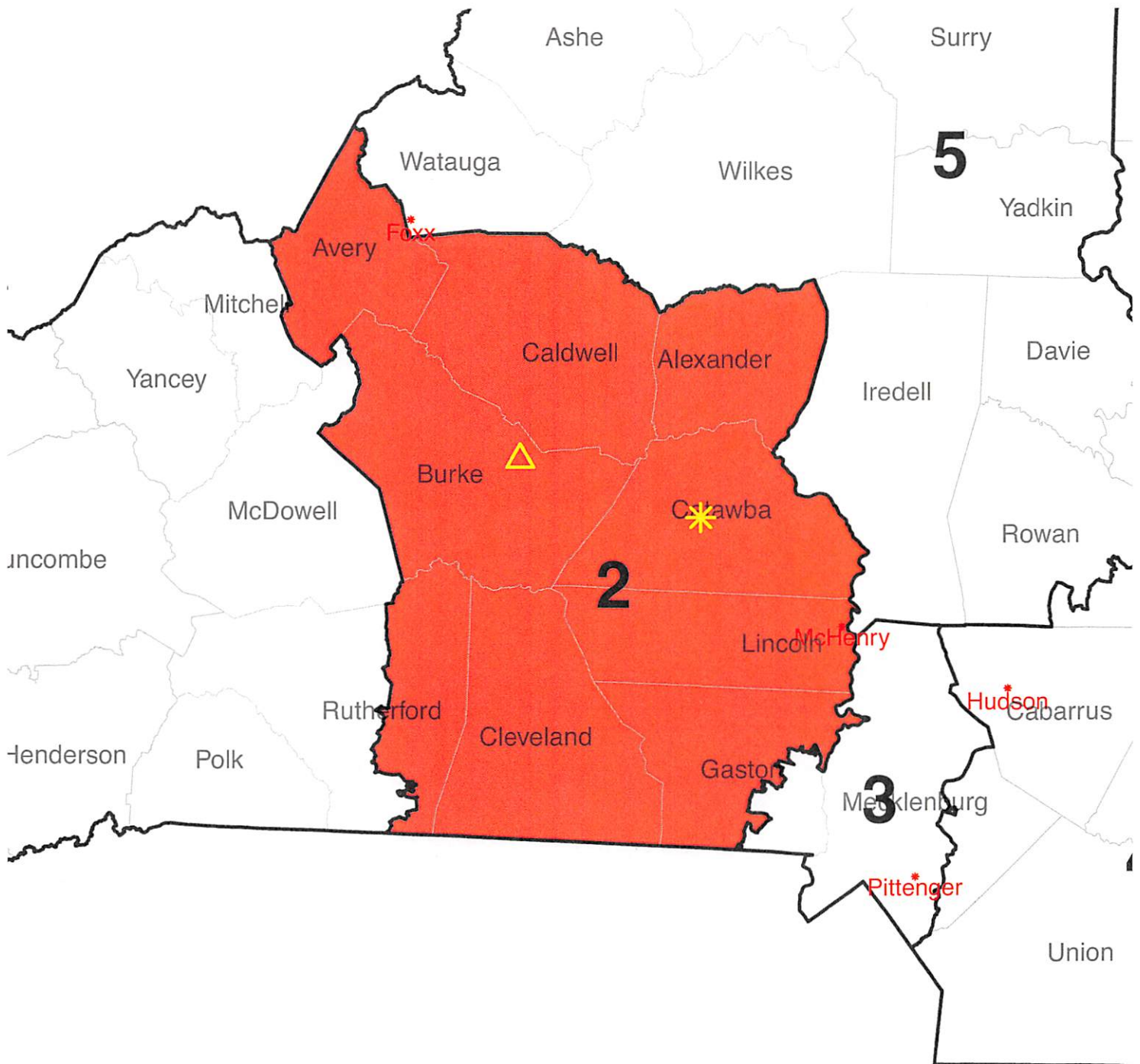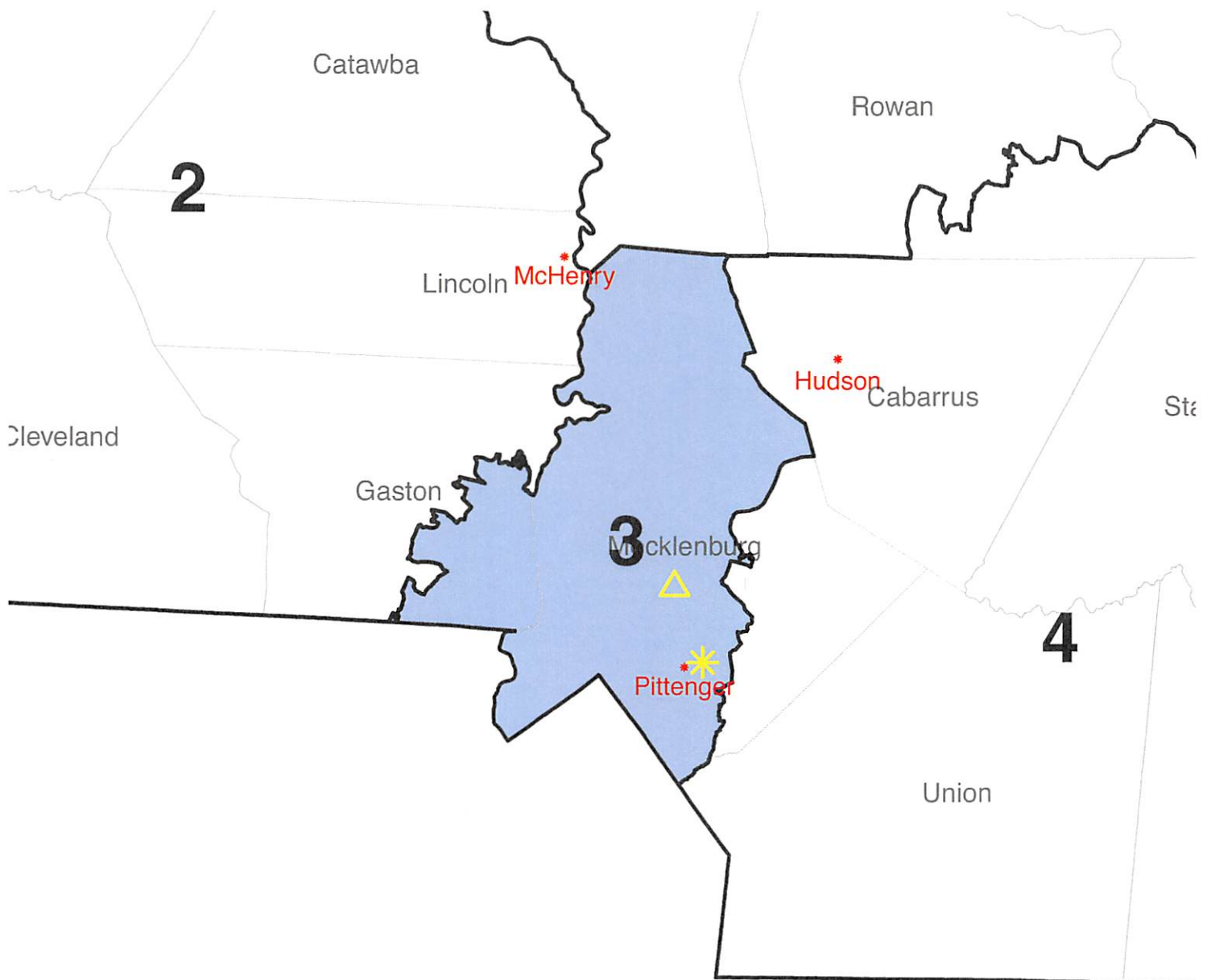
Jowei Chen

7

District 1 of Plan 2–297
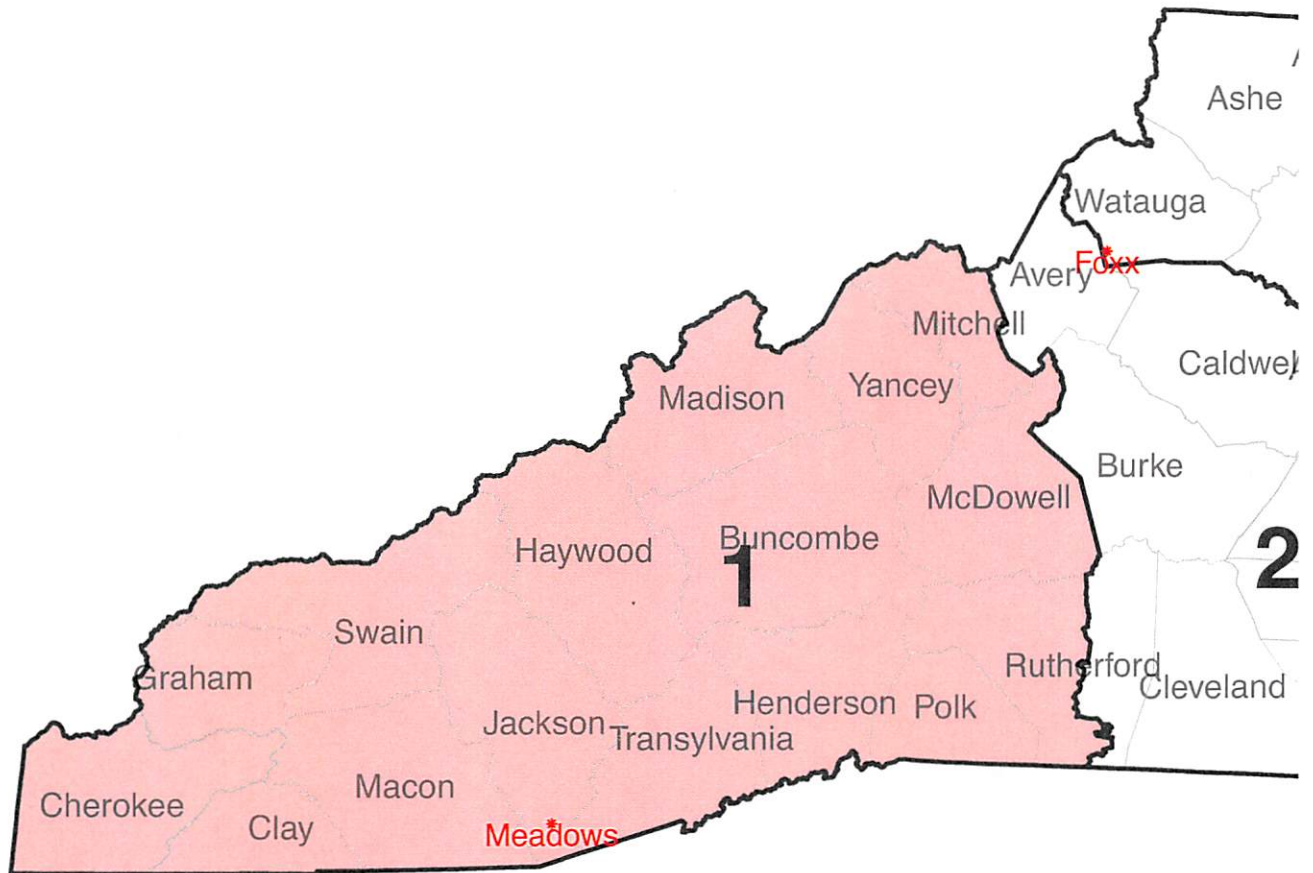
District 2 of Plan 2–297

Legend:

✳ PRECINCT: 40_WEST NEWTON (CATAWBA COUNTY)
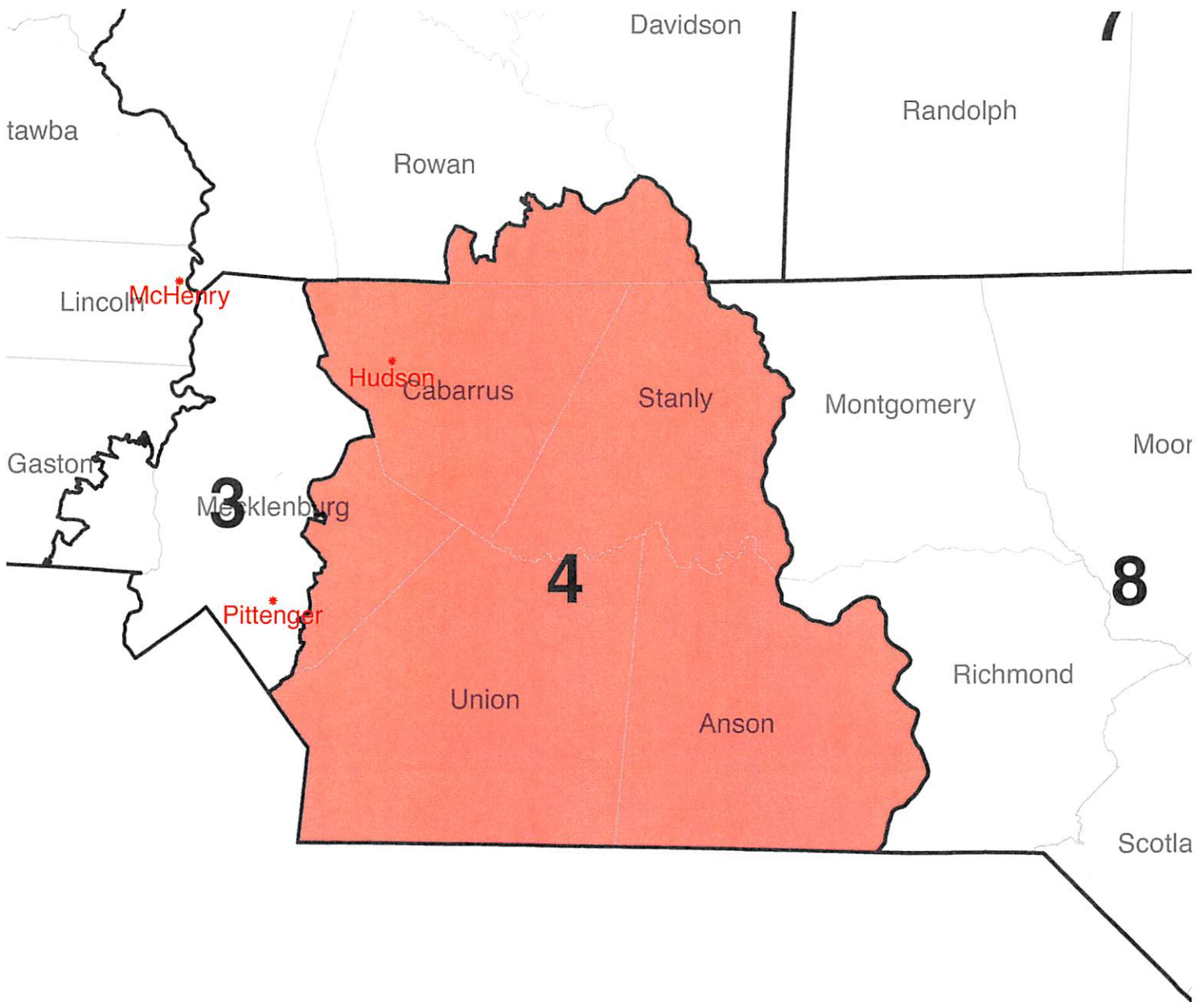△ PRECINCT: 0001_DREXEL 01 (BURKE COUNTY)

9

District 3 of Plan 2–297

Catawba

Rowan
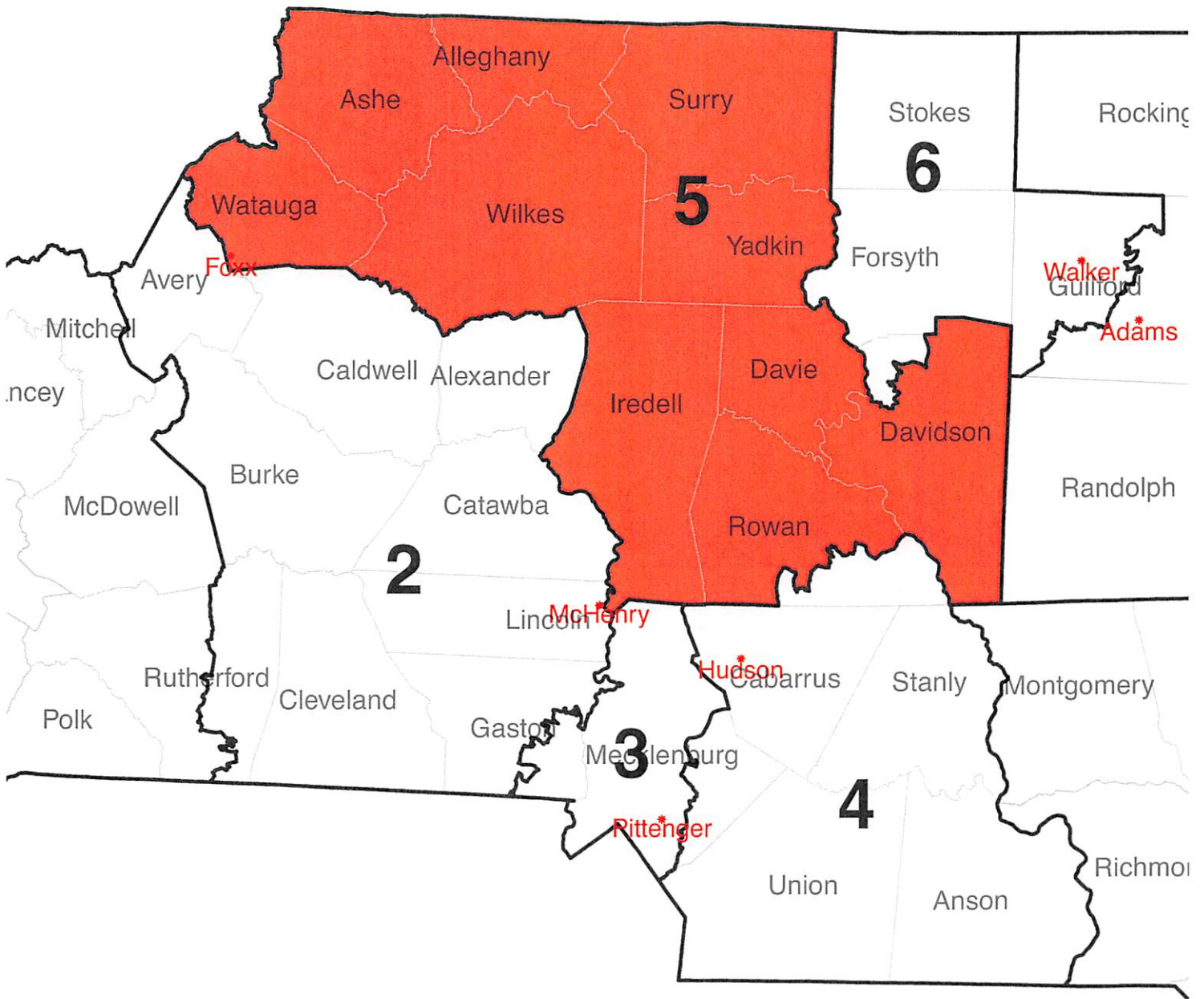
2

Lincoln *McHenry*

Hudson Cabarrus

Sta

Cleveland

Gaston

3 Mecklenburg

4

Pittenger

Union

Legend:
PRECINCT: 086 (MECKLENBURG COUNTY)
PRECINCT: 020 (MECKLENBURG COUNTY)

10

District 4 of Plan 2–297

11

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District 5 of Plan 2–297

District 6 of Plan 2-297

Surry

Stokes

Rockingham

Casw

5

6

Yadkin

Forsyth

Walke
Guilford

Adams

Alamance

Davie

Iredell

Davidson

7

Rowan

Randolph

Chatham

y

Legend:

✳ PRECINCT: 074_MEADOWLARK MIDDLE SCHOOL (FORSYTH COUNTY)
△ PRECINCT: NCGR2 (GUILFORD COUNTY)
● PRECINCT: G31 (GUILFORD COUNTY)

3
Mecklenburg
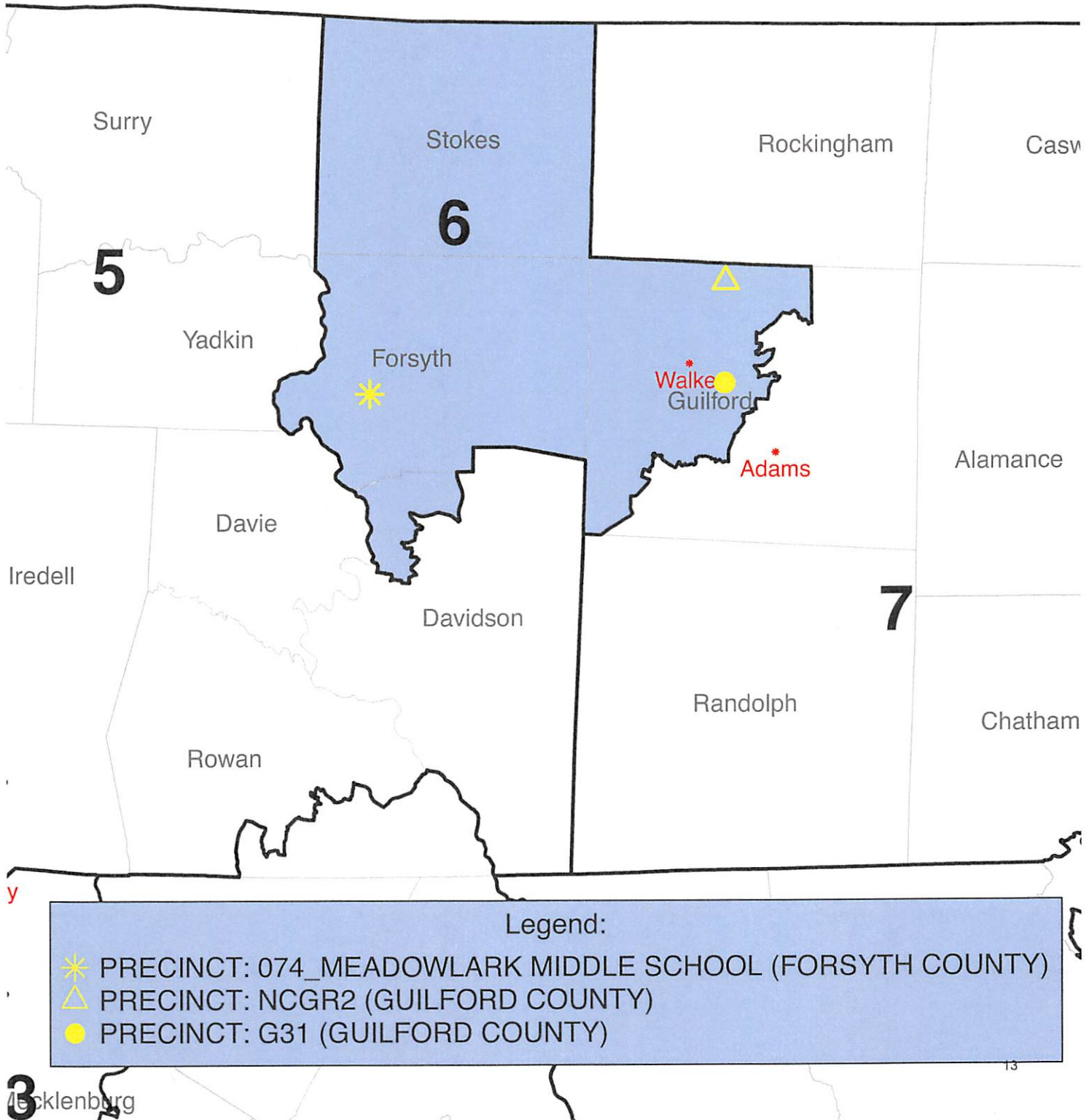
District 7 of Plan 2–297

District 8 of Plan 2–297

Davidson

Price

Wake **10**

Holding

7

Randolph

Chatham

Rouzer

Johnston

van

Lee

Harnett

arrus   Stanly   Montgomery

Moore ✳

Ellmers

4

8

Jnion

Richmond

Hoke

Cumberland

Sampson

Anson

Scotland

Robeson

Bladen

9

Columbus

Brunsw

Legend:

✳ PRECINCT: EUR–WP_EUREKA/WHISPERING PINES (MOORE COUNTY)

15

District 9 of Plan 2-297

Randolph
Chatham

Butterfield

Rouzer ohnston

Jones

Martir

B

Lee

Harnett

ntgomery

Moore

Ellmers

Wilson

Greene

Wayne

Lenoir

Craven

8

Richmond

Hoke

Cumberland

Sampson

Jones

Duplin

Scotland

Robeson

Bladen

Onslow

Pender

9

Columbus

New Hanover

Brunswick

District 10 of Plan 2-297

Granville

Orange
11

Durham

Franklin

Nash
12

Edge

*
Price

Wake
10

*
Holding

Wilson
Butterfield

Johnston

Greene

*
Rouzer

Lee

Harnett

Wayne

Leno

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Ellmers

Hoke

Cumberland

Sampson

Duplin

Legend:
✳ PRECINCT: 01-04 (WAKE COUNTY)

17

District 11 of Plan 2-297

Rockingham

Caswell

Person

Vance

Warren

Granville

Orange **11**

Franklin

er
ford

Adams

Alamance

Durham

Nash

7

Price

Wake

andolph

Chatham

Holding

10

Wi
Butter

Lee

Rouzer

Johnston

nery

Harnett

Wayne

Moore

Ellmers

Legend:

Ri

✳ PRECINCT: 20–11 (WAKE COUNTY) and

Sampson

Duplin
18

District 12 of Plan 2–297

Legend:
- PRECINCT: P1_PLYMOUTH 1 (WASHINGTON COUNTY)
- PRECINCT: J_JAMESVILLE (MARTIN COUNTY)
- PRECINCT: 13 (WAYNE COUNTY)

19
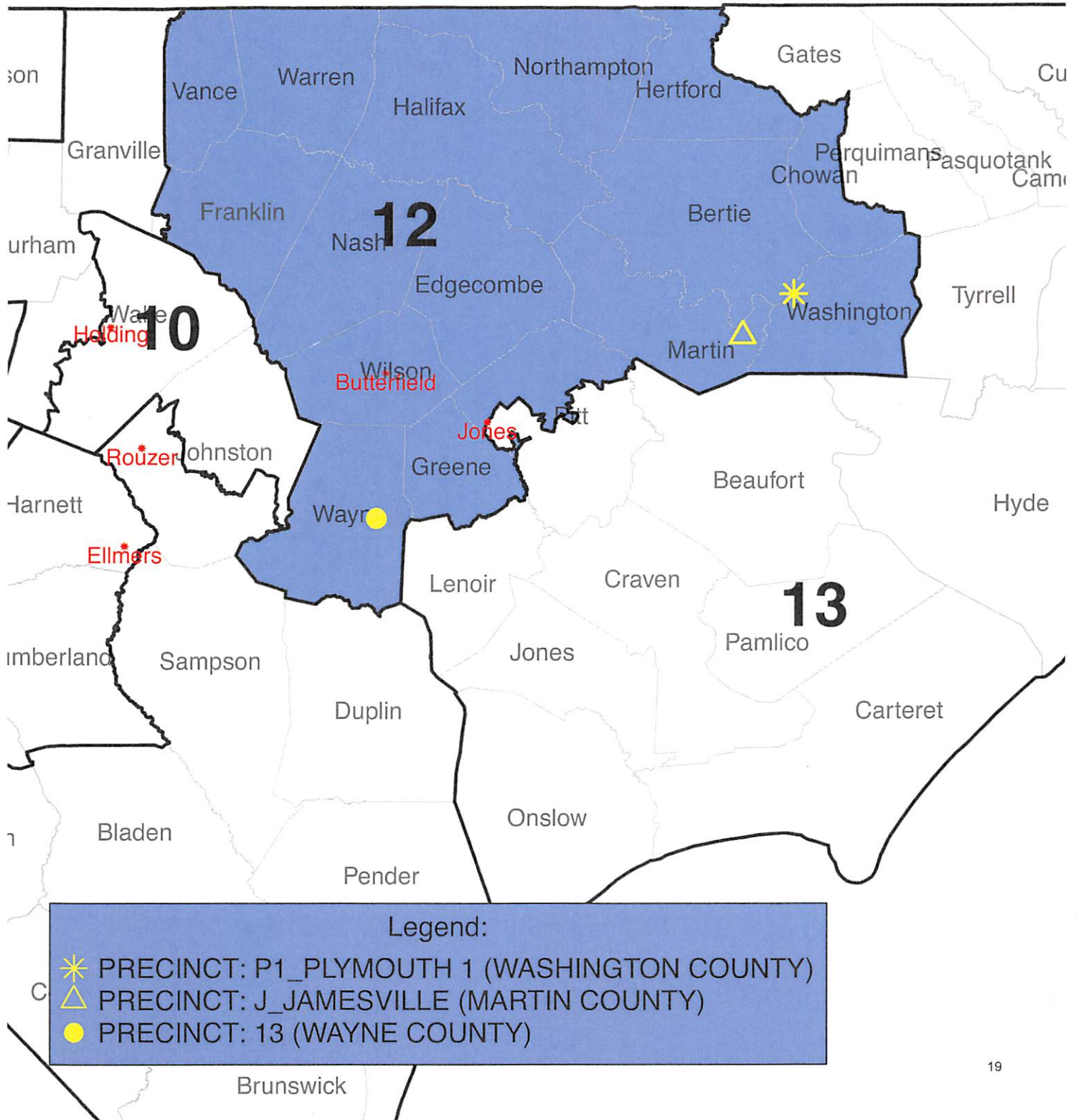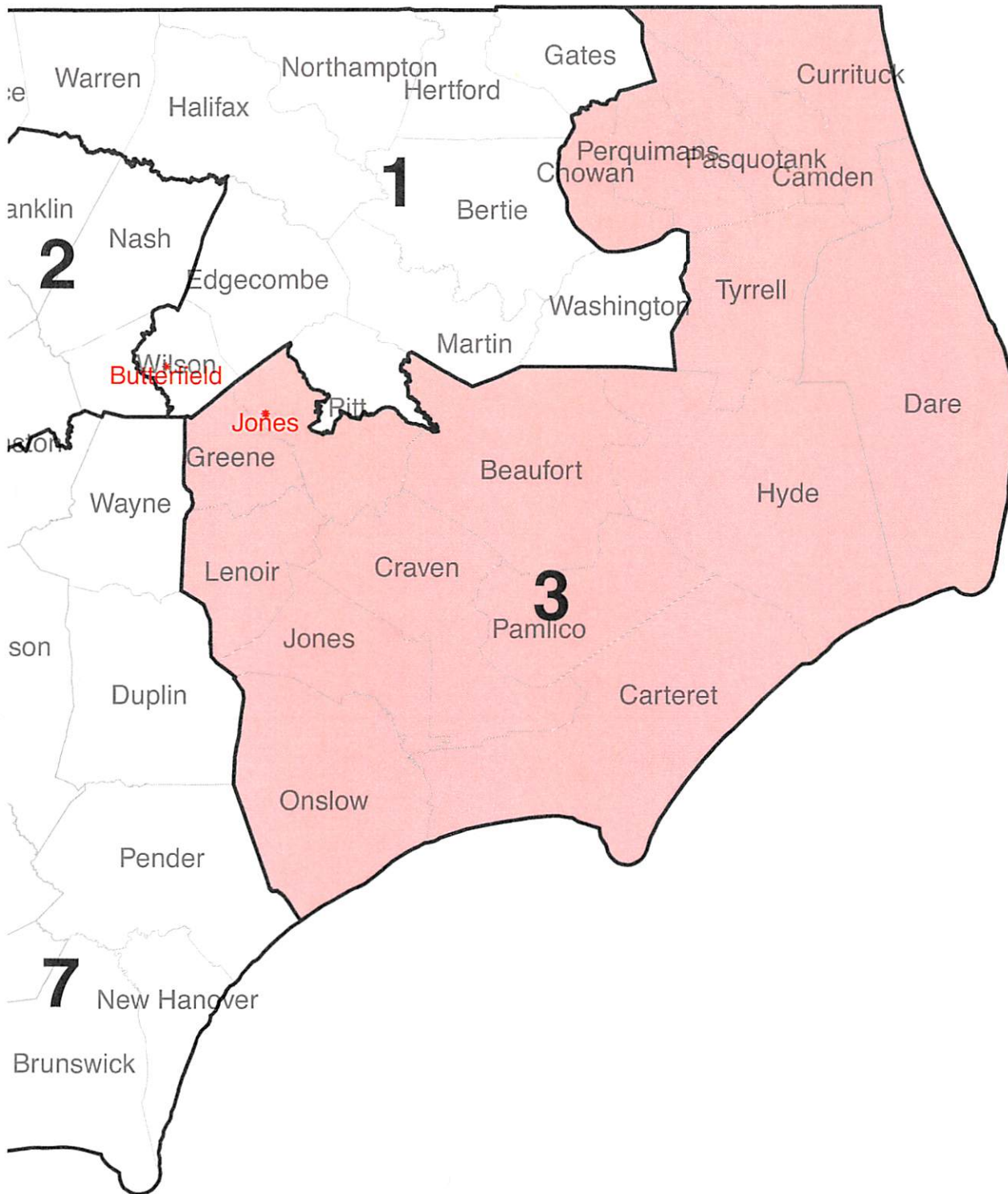
District 13 of Plan 2–297
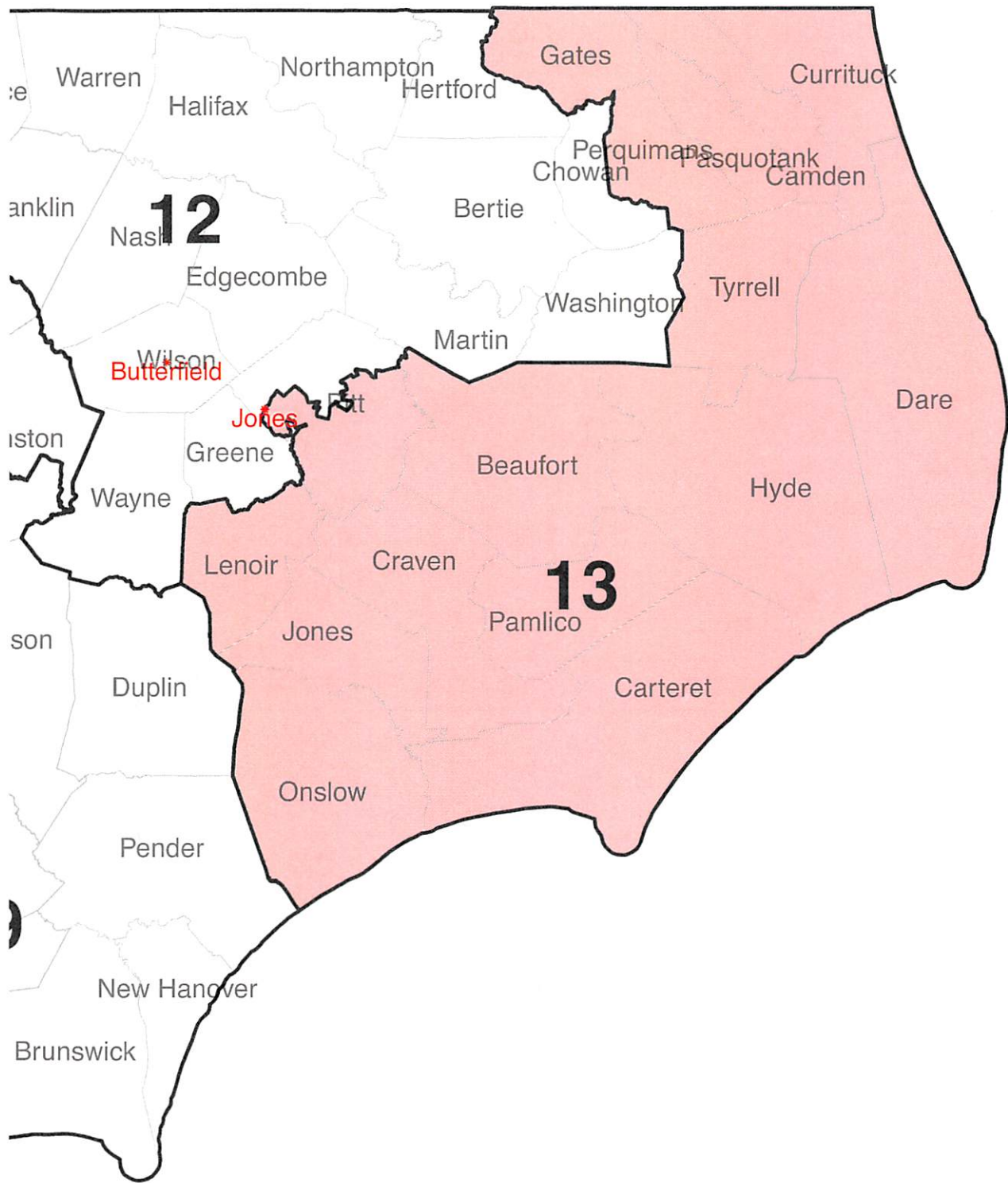
District 1 of the 2016 Enacted Plan
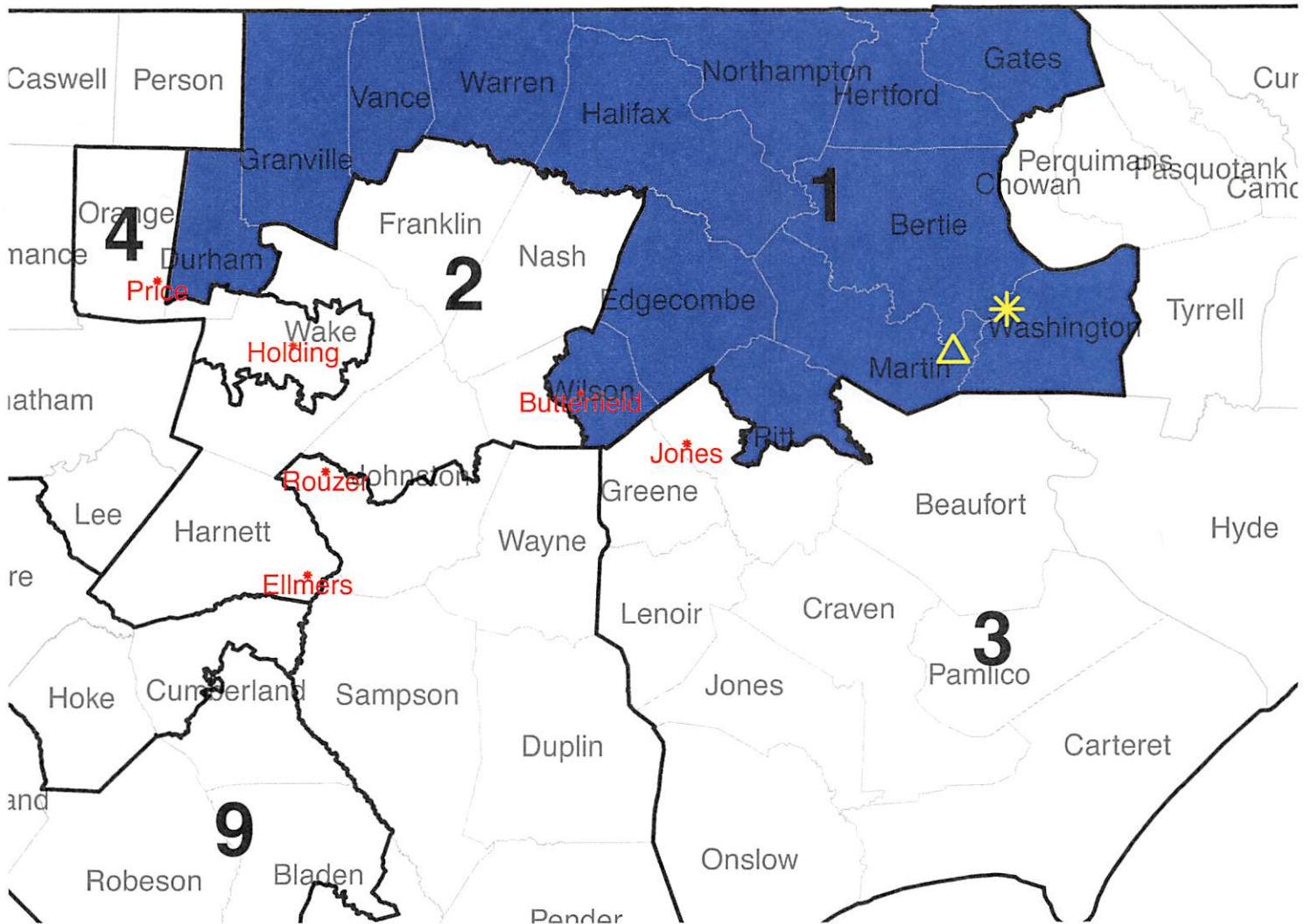
Legend:
✳ PRECINCT: P1_PLYMOUTH 1 (WASHINGTON COUNTY)
△ PRECINCT: J_JAMESVILLE (MARTIN COUNTY)

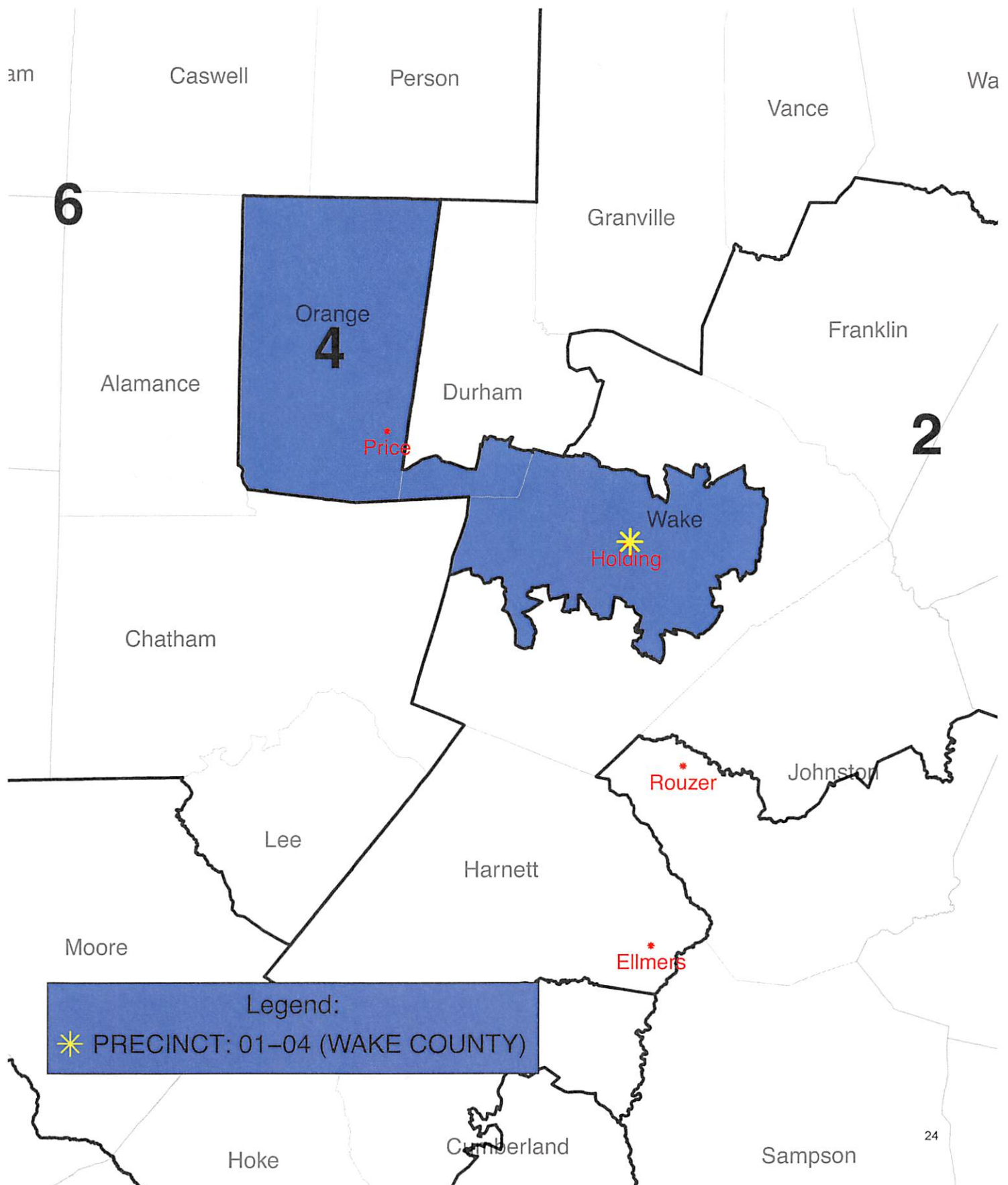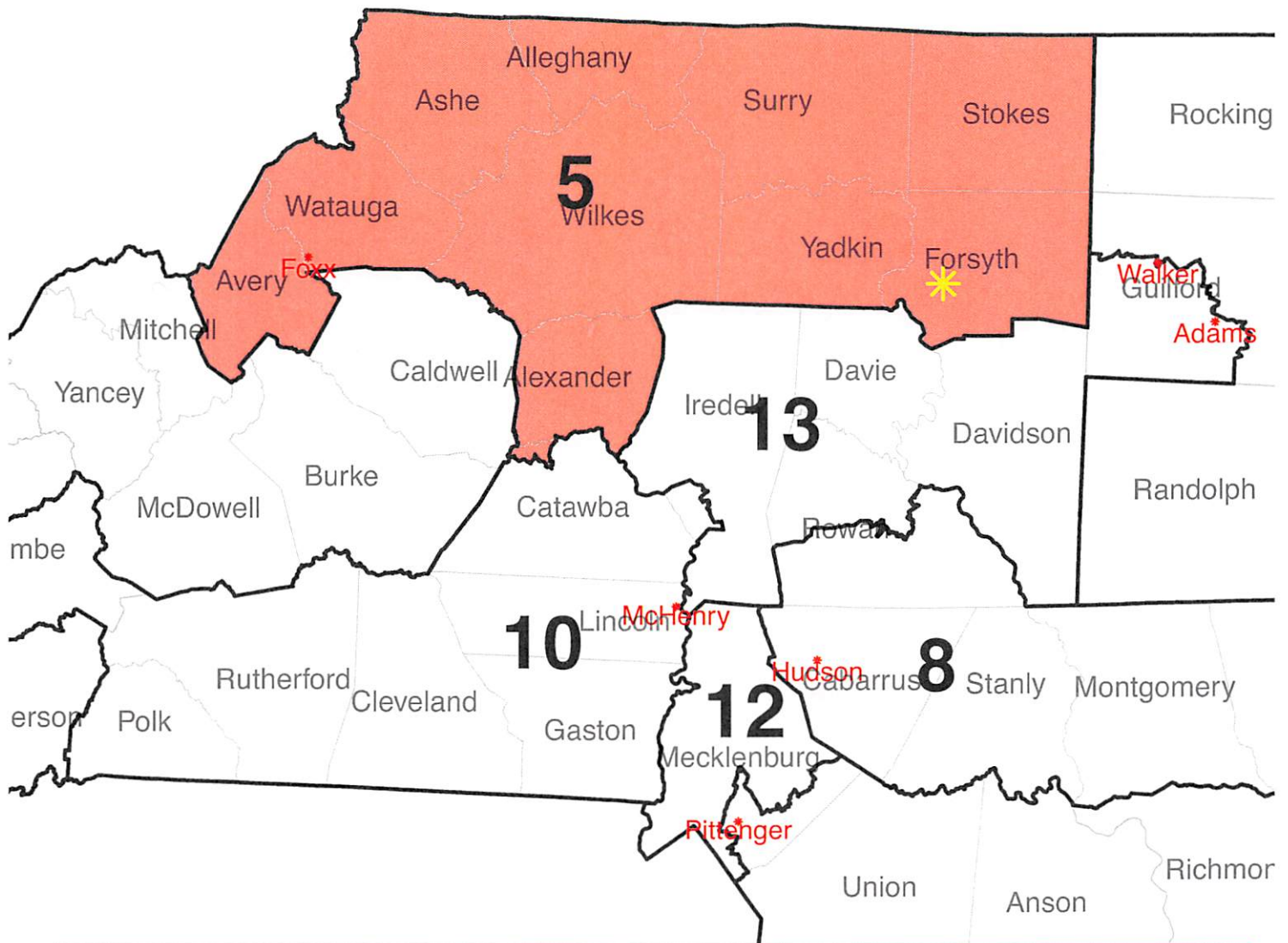# District 2 of the 2016 Enacted Plan

Legend:
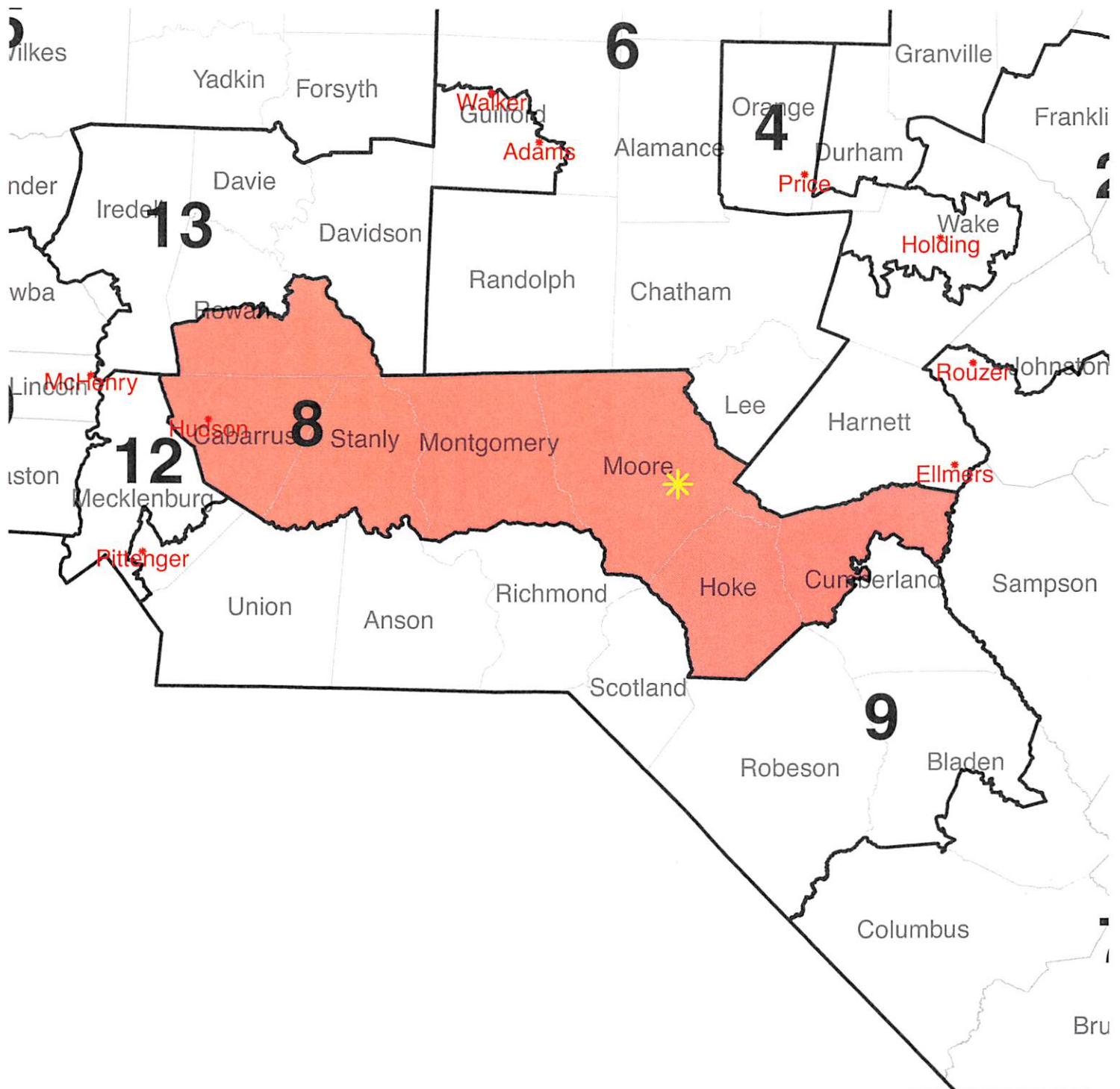※ PRECINCT: 20-11 (WAKE COUNTY)
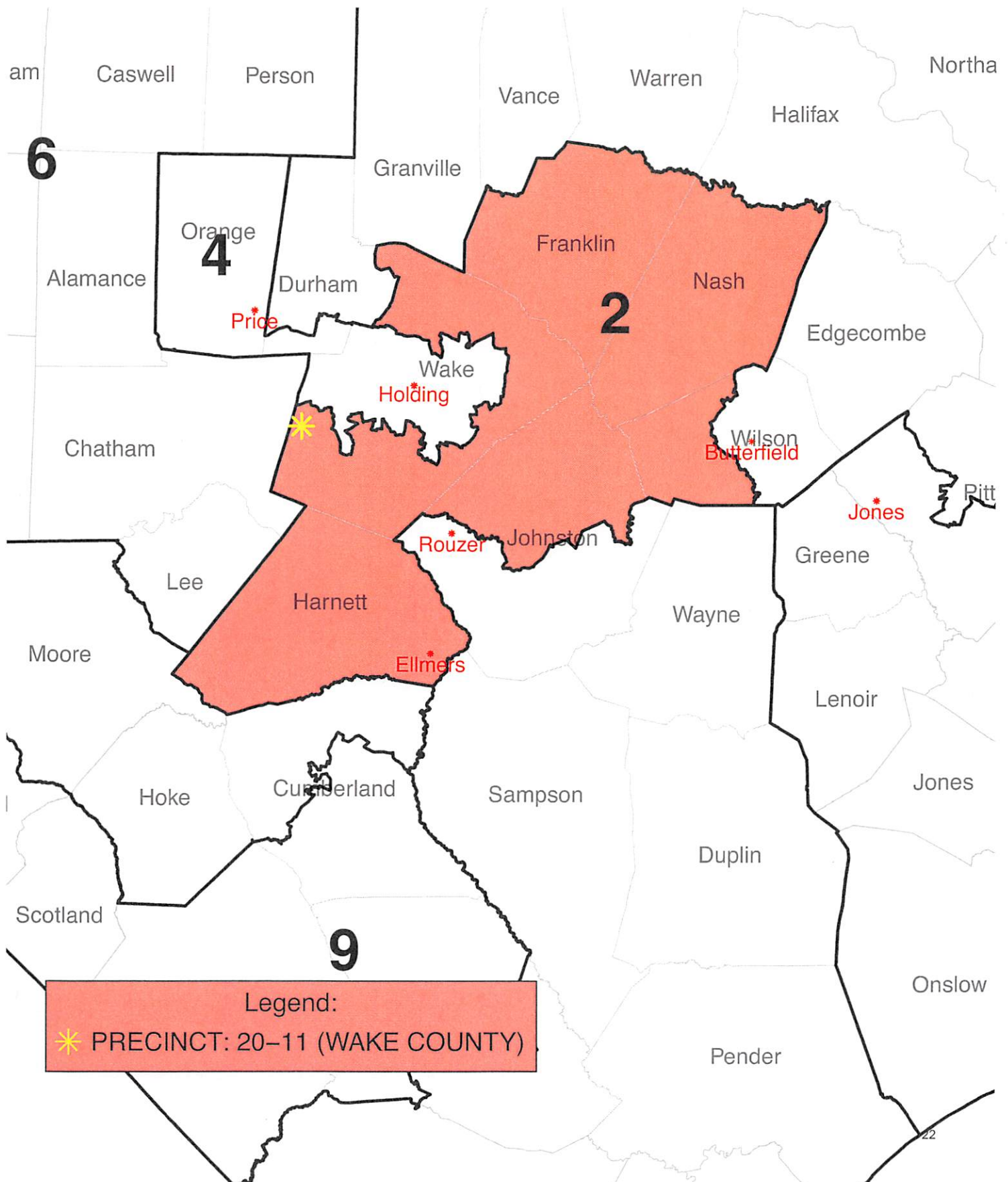
District 3 of the 2016 Enacted Plan

District 4 of the 2016 Enacted Plan

Legend:
* PRECINCT: 01–04 (WAKE COUNTY)

District 5 of the 2016 Enacted Plan

Legend:
※ PRECINCT: 074_MEADOWLARK MIDDLE SCHOOL (FORSYTH COUNTY)

25

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District 6 of the 2016 Enacted Plan

Legend:
✳ PRECINCT: NCGR2 (GUILFORD COUNTY)
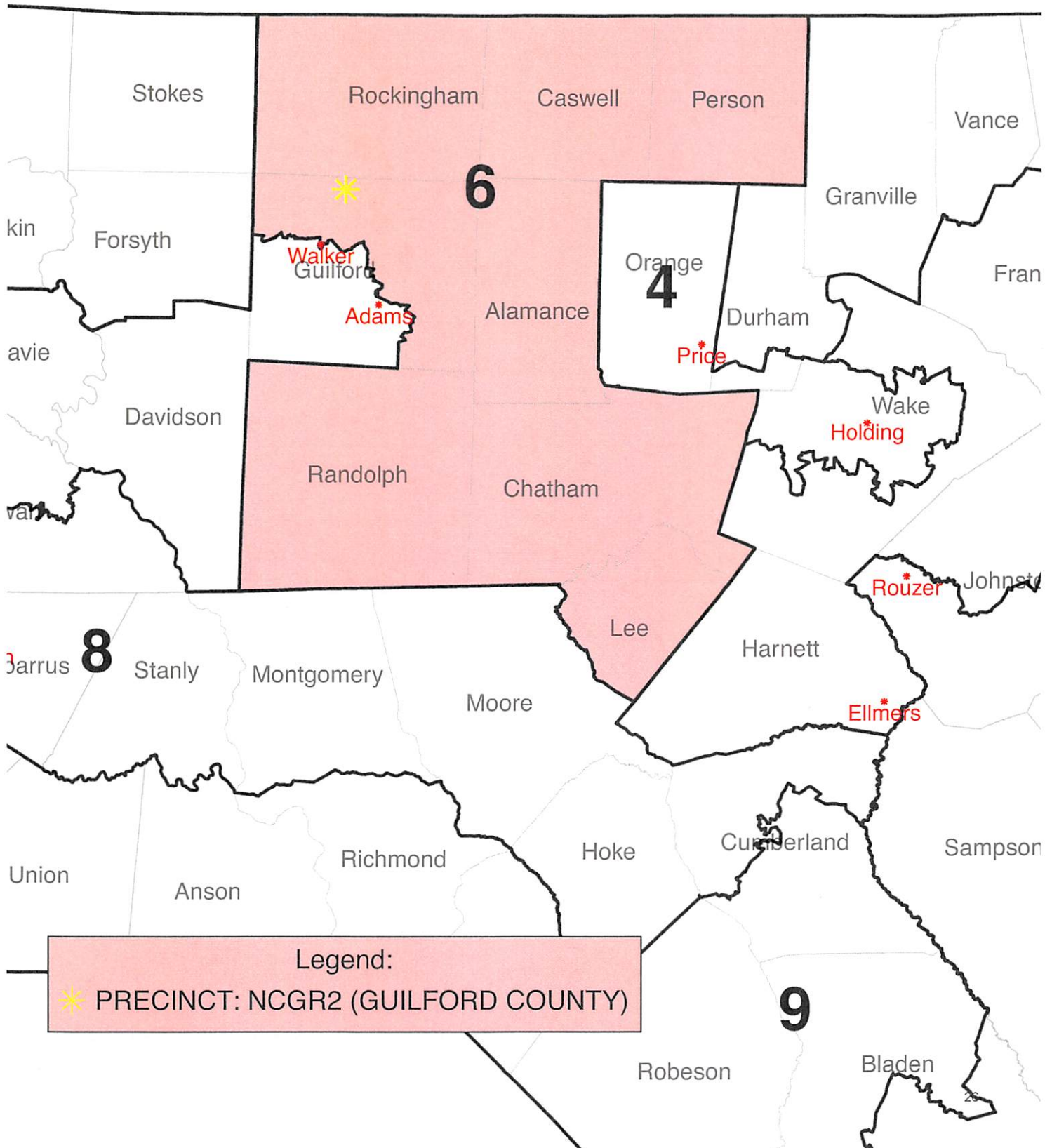
District 7 of the 2016 Enacted Plan

Iolph
Chatham
Wilson
Butterfield
Pitt
Rouzer
Johnston
Jones
Greene
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Harnett
Wayne ☀
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Ellmers
Lenoir
Craven
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Sampson
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Hoke
Cumberland
Jones
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Duplin
Scotland
9
Onslow
Robeson
Bladen
Pender
Columbus
7
New Hanover
Brunswick
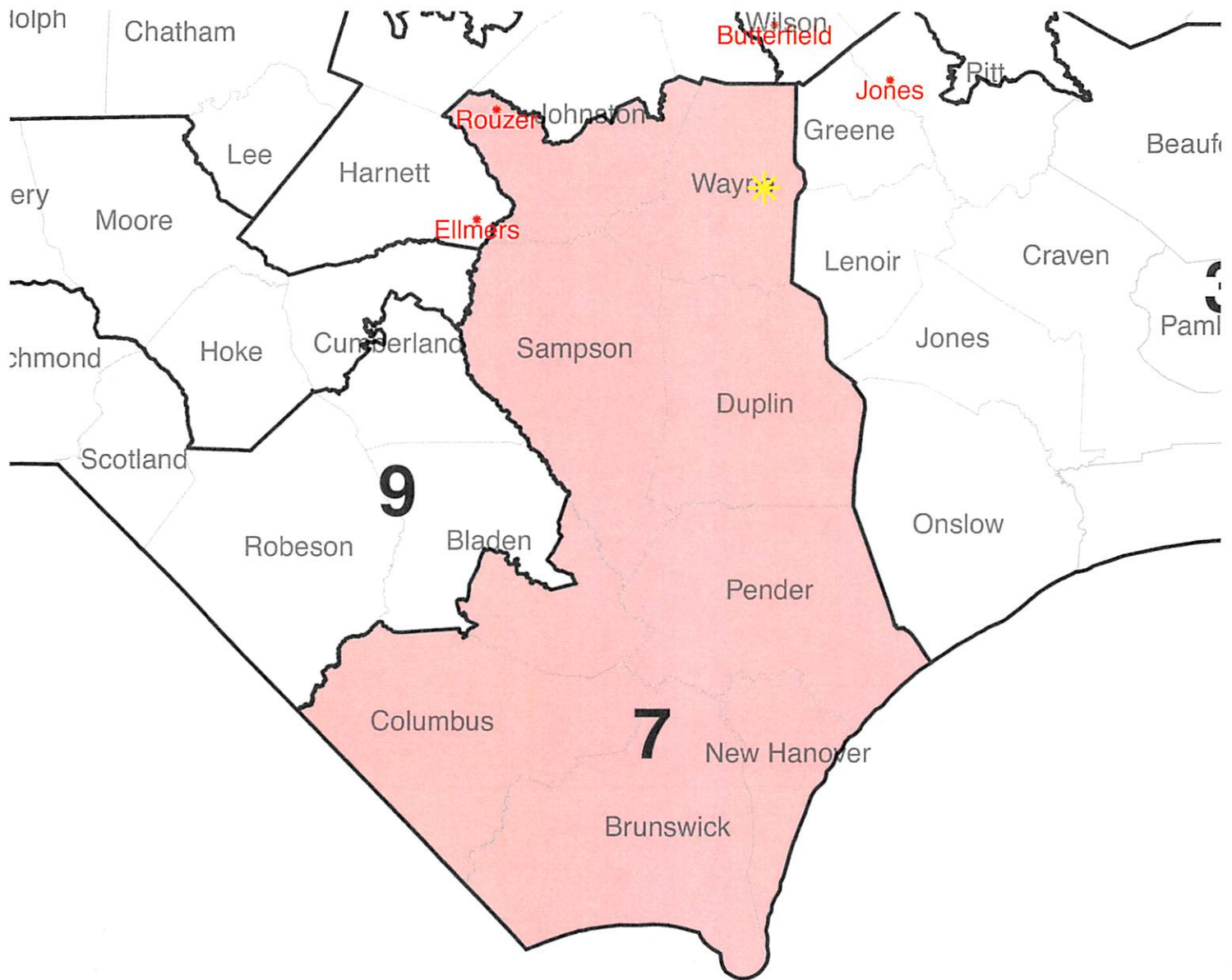
Legend:
☀ PRECINCT: 13 (WAYNE COUNTY)
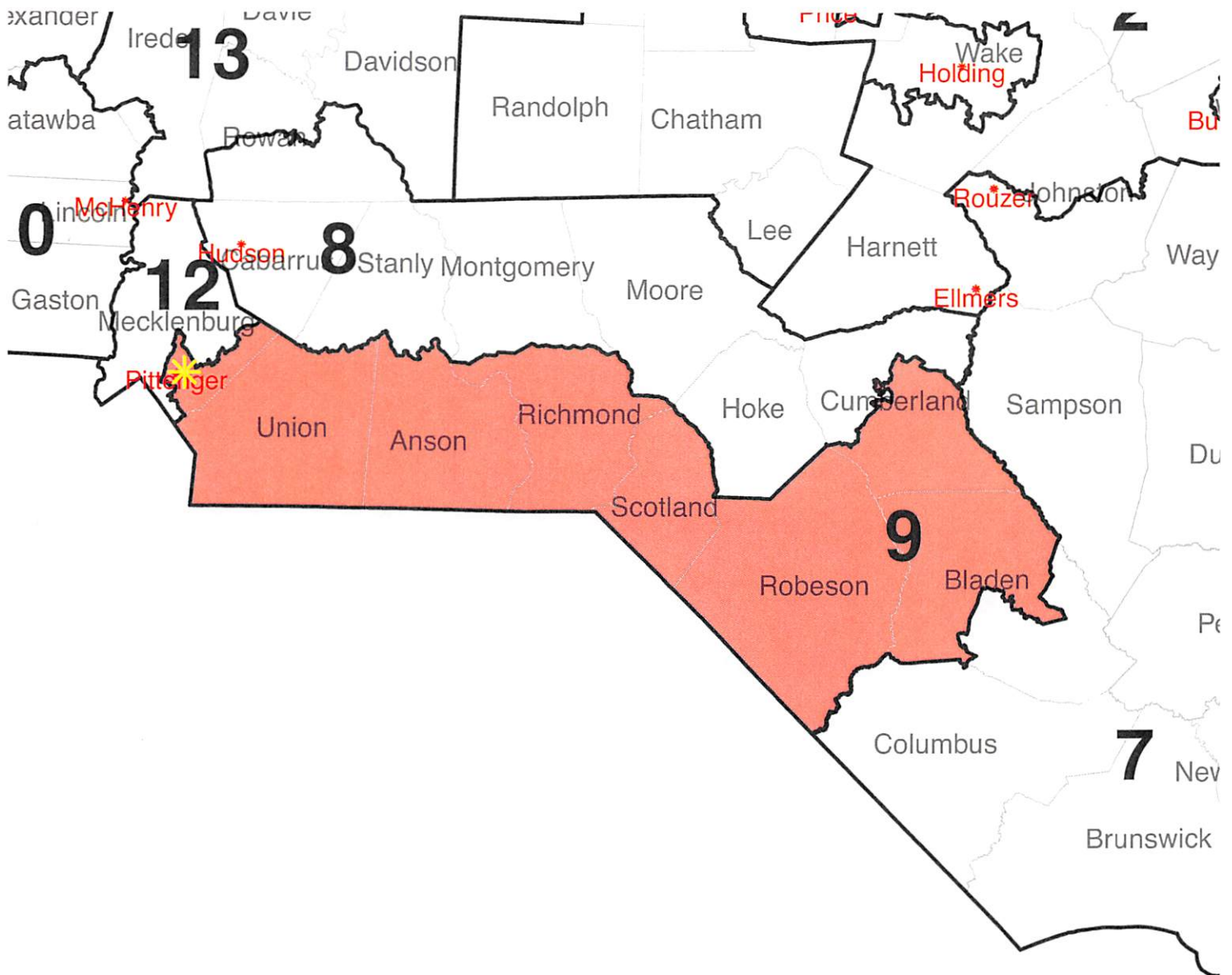
27

District 8 of the 2016 Enacted Plan

Legend:
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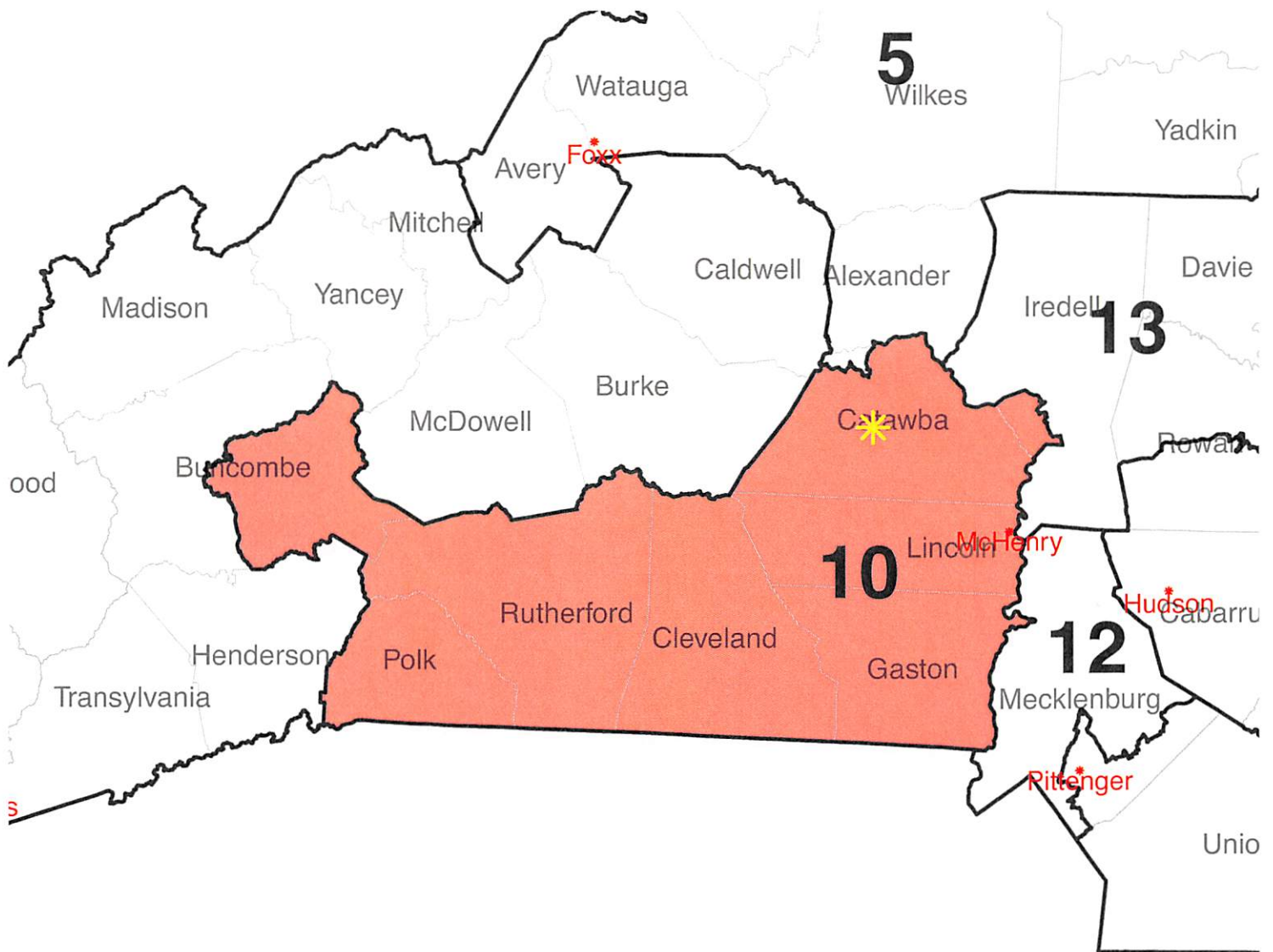
28

District 9 of the 2016 Enacted Plan
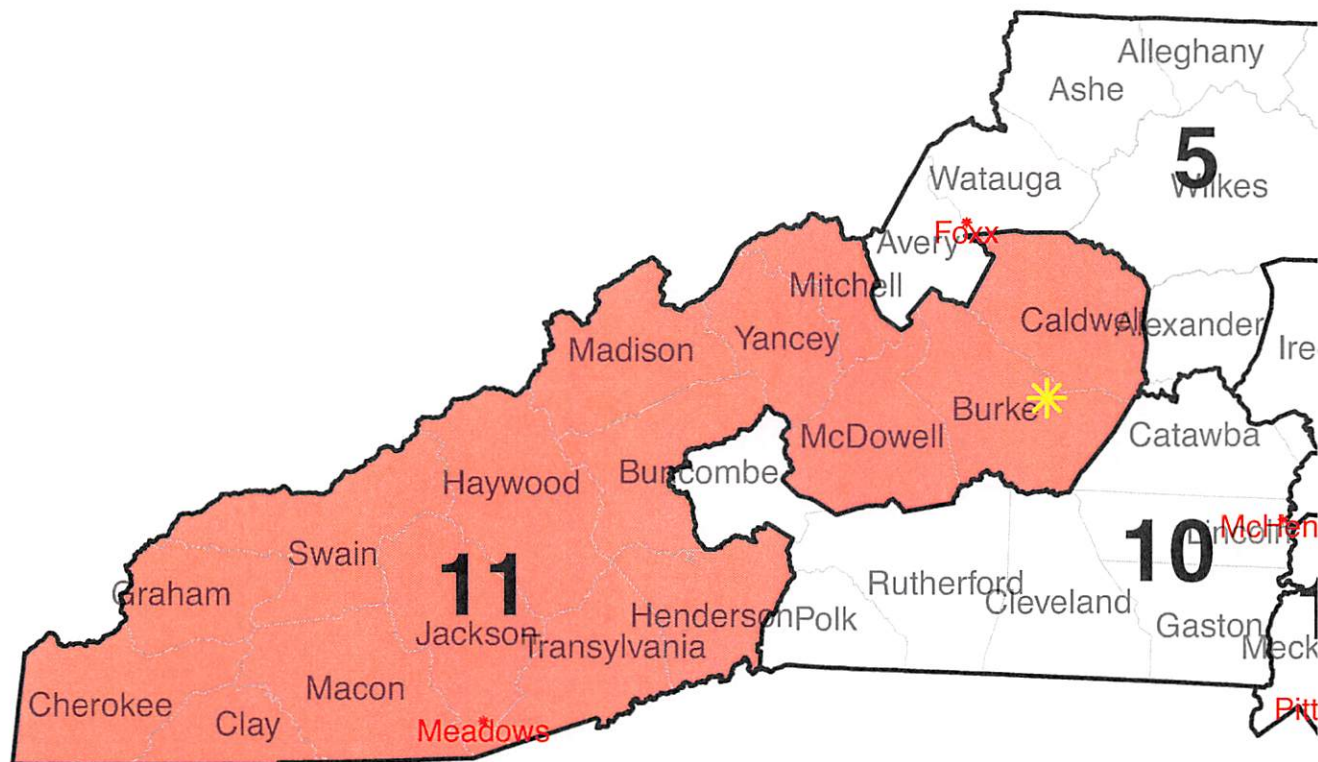

Legend:
✳ PRECINCT: 086 (MECKLENBURG COUNTY)

District 10 of the 2016 Enacted Plan

Legend:
✳ PRECINCT: 40_WEST NEWTON (CATAWBA COUNTY)
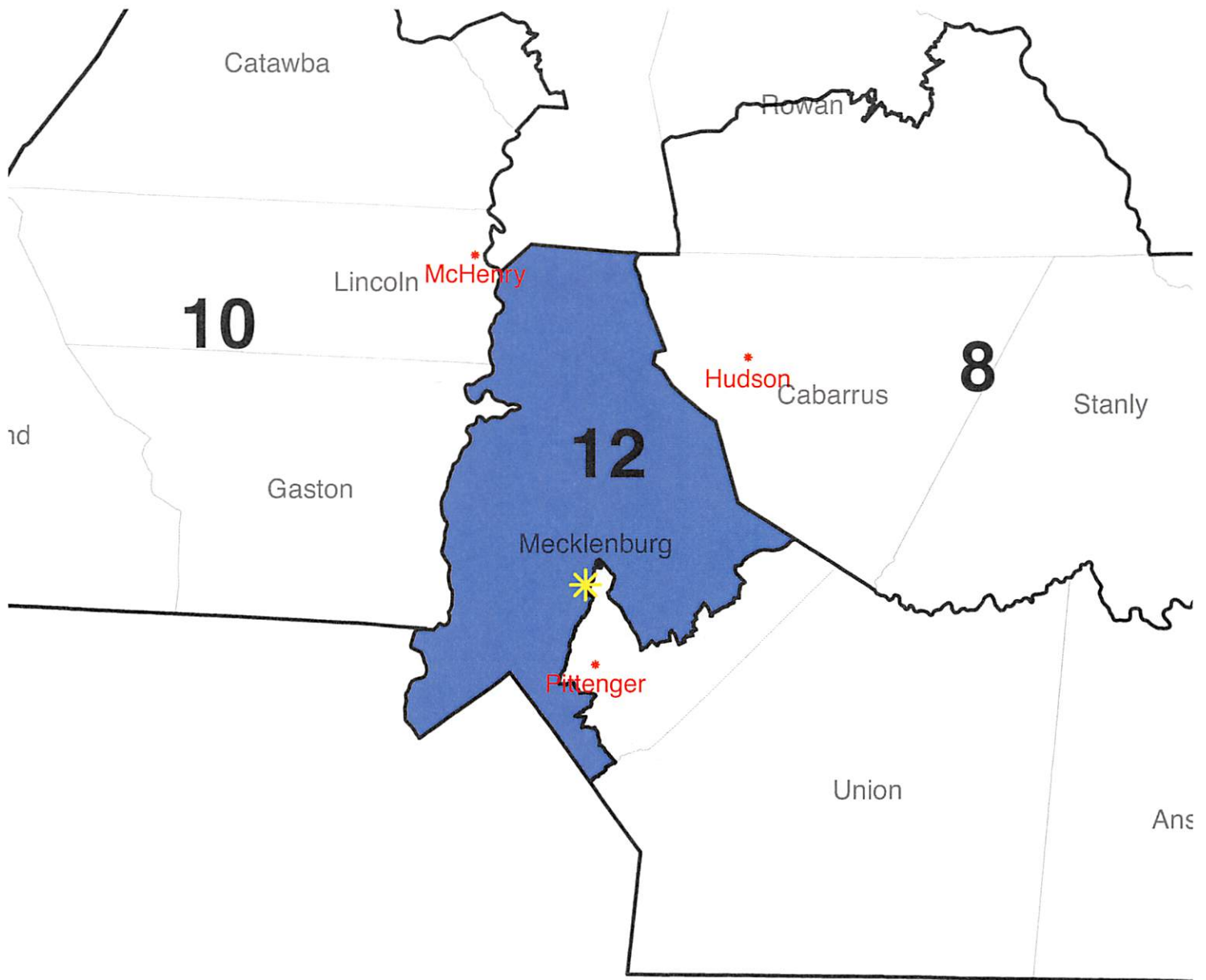
District 11 of the 2016 Enacted Plan

Legend:
⁎ PRECINCT: 0001_DREXEL 01 (BURKE COUNTY)

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District 12 of the 2016 Enacted Plan

Legend:
* PRECINCT: 020 (MECKLENBURG COUNTY)

District 13 of the 2016 Enacted Plan

Legend:
☀ PRECINCT: G31 (GUILFORD COUNTY)

33